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Approved By:

Orestes Vasquez, Agricultural Attaché

Prepared By:

Sakchai Preechajarn, Agricultural Specialist

Report Highlights:

The report reflects updates on an attempt by the Thai Society for Biotechnology (TSB) in submitting a request for field trials for a herbicide tolerant corn. The current policy and capacity building developments basically remained unchanged from the annual report in 2010.

Section I. Executive Summary:

Since the Thai Cabinet revoked the ban on biotech field trials in December 2007, Thailand has made little progress in allowing the commercial use of biotech crops in Thailand. None of entity has submitted a proposal for field trials due mainly to the restrictive controls and surveillance required for field trials, which include confining trials to government properties and the need to conduct public hearings prior to initiating any new field trials. The Thai Society for Biotechnology (TSB) is scheduled to submit its proposal to the Thai authorities by the end of 2011 in its attempt to begin field trials for an herbicide tolerant corn. The Cabinet agreed an in-principle draft of Biosafety Law in January 2008 but the detailed law draft has been reviewed by the Office of Council of State (OCS) for more than three years. Despite a claim that the draft is under the final review, none can confirm a definite timeframe for review completion. Once the OCS's review completes, the final draft will be submitted to the Cabinet for approval, and then to the House of Representatives for official legislation. This Biosafety Law is supposed to an effective tool to end the Cabinet's impasse of field trials measures and lead to biotech commercialization.

Section II. Plant Biotechnology Trade and Production:

Research progress has been made over the past 20 years, such as the completion of field trials several imported transgenic plants and several local varieties. The first field trials conducted were with Flavr Savr tomato, a delayed ripening tomato in 1994. Subsequently, field-testing was conducted for Bt cotton, Bt corn, Round-up ready cotton, Round-up ready corn, Antisense RNA tomato, and ring-spot virus resistant papaya. The safety and potential that Monsanto's Bt cotton demonstrated during the trial period led to expectations of becoming the first transgenic crop to be approved for commercial planting in Thailand. However in 2003, due to environmental and human health concerns, the Thai government issued a blanket ban on all field trials to avoid political fallout from non-governmental organizations (NGO'S). This opposition was initiated by BioThai and Organization of the Poor, which has caused the implementation of effective policies regulating biotechnology production to linger to the point that production is currently restricted.

On the trade side, due mainly to a need for soybeans to meet its processed oil and feed demand; Thailand, based on the Cabinet's decision on April 3, 2001 and the Plant Quarantine Act B.E. 2507, allows the importation of transgenic plants as: (1) processed foods; and (2) soybeans and corn for feed, and industrial use. In addition, there has been no restriction on the biotech cotton lint trade in Thailand. In 2010, according to the Thai Customs Department, Thailand's imports of soybeans and cotton totaled US\$ 820.3 million for soybeans and US\$ 738.5 million for cotton, respectively. It is estimated that 766 million or 93 percent of total soybean imports in 2010 belongs to biotech soybeans, vis-à-vis US\$ 738.5 million or 72 percent of total imports in case of cotton.

Thai Food and Drug Administration (FDA) also regulates that processed foods containing biotech products must comply with labeling requirements which allows for a five percent tolerance (see also [TH6077](#)) for biotech materials/products. If it exceeds this threshold it must be labeled accordingly.

Section III. Plant Biotechnology Policy:

Current Biotechnology Policy

Although the Thai Cabinet revoked the biotech field trial ban in Thailand on December 25, 2007 ([TH6077](#)), future field trials must be conducted under restrictive controls and surveillance, these include confining trials to government properties and conducting public hearings prior to initiating new field trials.

At the time, government and private sector stakeholders voiced concerns with this measure, since field trial approval is done on a case-by-case basis by the Cabinet which to date has been detrimental due to the politicized tone it has taken. Besides, the procedures for public hearings are unclear and provide a platform for opponents of the technology to shut down meaningful debate using unsupported claims.

To deal with these concerns, the 2007 Cabinet Agreement reiterated the need to develop sound guidelines for field trials through the implementation of an effective Biosafety Law. However, the development of the Biosafety law is currently pending, but a law has been drafted since 2008 and is currently being reviewed at the final draft review by the Office of the Council of State (OCS). Once this final draft is completed, it will be submitted to the Cabinet for approval, and then to House of Representative for official legislation. The draft of Biosafety Law as approved by the Cabinet on January 22, 2008, contains 9 Chapters, these include:

- The appointment and responsibilities of the National Biosafety Commission;
- Appointment and responsibilities of the national coordination agency and appointing Biodiversity Office as a Secretariat office for the National Biosafety Commission;
- Operational provisions on 1) import, export and transmit of GMOs, 2) contained use of GMOs, 3) field experiment in confined area, 4) intentional release of GMOs to the environment, 5) placing GMOs on the market; 6) suspending, revoke, and cancellation of license, 7) handling, transport, relocates, storage, packaging, and identification of GMOs, and 8) emergency and unintentional release of GMOs to the environment;
- Public participation, disclosure and cancellation;
- Establishment of National Biosafety Fund;
- Officers duties, responsibilities, and authority;
- Appeal procedures;
- Liability and redress on GMO impact on biodiversity, human health, and social and economic living;
- Enforcement and punishment;

The Cabinet's decision in December 2007 implied that while the Biosafety Law has not been in place, the Ministry of Agriculture must develop field trial procedures. These procedures would be used for the Cabinet to review and approve a request to conduct the field trial for specific biotech crop as a case-by-case basis. To meet the Cabinet's requirement, Department of Agriculture (DOA), in cooperation with National Center for Genetic Engineering and Biotechnology (BIOTEC) and Kasetsart University, began to develop field trial procedures for biotech papaya and tomato under government agencies' research in 2008. This procedures are supposed to be used when the DOA and Kasetsart University will submit a request to conduct field trials for their two biotech crops which are already tested in the greenhouses. Sources, however, reported that the final draft is currently held by DOA's Director General (DG). Once approved by the DG, the next steps to commence field trials are to conduct a public hearing, submit the

final draft to the Ag Minister, and then submit to the Cabinet for final approval.

The Thai Society for Biotechnology (TSB) is scheduled to submit its proposal to the Thai authorities by the end of 2011 in its attempt to begin field trials for an herbicide tolerant corn. According to TSB, the content of the proposal identify three factors, i.e., 1) field trial sites which must be government property; 2) biosafety information; and 3) management plan for field trials.

In early 2010, agricultural biotechnology faced an additional hurdle when it was considered to be included under a law that lists “potentially hazardous activities to a community’s well-being” which under the constitution would require any attempts to use biotechnology in any form to undergo a health and environmental risk assessment. This measure created angst amongst the biotech community, and catalyzed stakeholders to come together and provide the necessary arguments to exclude any attempts of including biotechnology in the list. As a result, the Federation of Thai Industries (FTI) was responsible of organizing a united front to voice a common position at the public hearings with the goal of upending attempts to include GMOs in the restrictive list. Finally, FTI and stakeholders successfully convinced the Sub-Committee on Public Hearings to Review the List of “Projects or Activities that May Severely Affect a Community’s Well-Being” to remove biotechnology activities from the list on June 28, 2010.

Responsible Government Agencies and Institutes

There are many government agencies and institutes/universities involved in biotechnology research and development and regulating the use of biotechnology at different levels. The role and responsibilities of these agencies or institutes are presented in the table below.

Institute	Role	Responsibilities
National Center for Genetic Engineering and Biotechnology (BIOTEC), Ministry of Science and Technology (MOST)	<ul style="list-style-type: none"> - Research and Development - Supporting institute 	<ul style="list-style-type: none"> - Research and development on genetic engineering - Technical advisory - Funding agency - DNA technology laboratory
Department of Agriculture (DOA), Ministry of Agriculture and Cooperatives (MOAC)	<ul style="list-style-type: none"> - Competent National Authority - Research and Development Institute emphasizing on plants 	<ul style="list-style-type: none"> - Regulating imported GMO seed for planting - Conducting research and development on plant genetic engineering and risk assessment
Food and Drug Administration (FDA), Ministry of Public Health (MOPH) Department of Trade Negotiations and Department of Foreign Trade, Ministry of Commerce (MOC)	<ul style="list-style-type: none"> Regulate trade on GM food products Regulate and coordinate international negotiation in trade on GM products 	<ul style="list-style-type: none"> Regulating and monitoring the use of GM food including labeling Regulating imports of GM products used as raw materials and coordinating with competent agencies for international negotiations
Ministry of Natural Resources and Environment (MONRE)	<ul style="list-style-type: none"> - National Focal Point - Coordinators for risk assessment on environmental aspect 	<ul style="list-style-type: none"> - Being the National Focal Point for Convention on Biological Diversity (CBD) and Cartagena Protocol on Biosafety (CPB) - Fully responsible for drafting the National Biosafety Law
National Bureau of National Agricultural Commodity and Food Standards (ACFS), Ministry of Agriculture and Cooperatives (MOAC)	A National Focal Point for Agricultural and Food Standards (SPS issues)	Representing the RTG to negotiate all SPS issues in international organizations (such as CODEX, OIE, etc.)

Thailand became a party in the Cartagena Protocol on Biosafety on February 8, 2006. Thailand follows the principles and rules of the Cartagena Protocol on Biosafety in drafting its National Biosafety Policy. The draft was approved by the Compliance Committee under the Cartagena Protocol on Biosafety on November 7, 2007. The policy covers eight concepts:

- Public Awareness, education and participation: Requiring the involvement of affected parties in policy-level decision-making on the sustainability, advantages and risks of the technology in question.
- Sustainability: Sustainable bioresource management must include ecological sustainability by ensuring species and genetic pool preservation.
- Risk Assessment and Management: Risk will be assessed and determined on a case-by-case basis based on scientific data.
- Risk Characterization: Characterizing risk for management and control of biotech materials must depend on the outcome of the risk assessment.
- Risk Communication: Risk communication will be based on scientific concepts simplified for public understanding, ensure public trust, as well as curb concerns due to conflicting information.
- Precautionary Principle: Avoid unnecessary damage from the lack of reliable scientific data on possible effects of biotech materials on the conservation and utilization of biodiversity, environment, and health care.
- Freedom of Choice: The state must encourage transparency, accuracy and up-to-date public information so stakeholders can make informed choices.
- Capacity Building: Continuous capacity-building on developments in modern biotechnology, increase the level of knowledge at a national level, and, proper utilization and management of the technology by the different stakeholders.

Thailand is responding to the recent initiatives of Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety which was opened for signature at the UN Headquarters in New York on 7 March 2011 and will remain open for signature until 6 March 2012. It will enter into force 90 days after being ratified by at least 40 Parties to the Cartagena Protocol on Biosafety. The Office of Natural Resources and Environmental Policy and Planning, Ministry of Natural Resources and Environment, conducted a public hearing among relevant government agencies, academic entities, and private sectors, to review and comment the proposed protocol in July 2011. It is likely that the Thai Government should join the signatories over this protocol by the end of 2011.

Section IV. Plant Biotechnology Marketing Issues:

Thai producers, retailers, and consumers remain misinformed about the safety and use of transgenic plants or foods. Contrary to public perceptions, Thailand consumes large amounts of biotech crops either directly such as soybean meal and oil or indirectly through the garments, meat derived from biotech feed, and processed foods. Although mandatory labeling is required for food products containing more than 5 percent of GMO's, much of it is absent as Thailand markets many products unpackaged or in bulk.

The survey conducted by THAI TOPIC in 2003 had consumers rank a series of food characteristics by order of priority ([TH7090](#)). Asian Food Information Center (AFIC) conducted a survey of Perception in 2004 ([TH9111](#)). In addition, the Biotechnology Alliance Association (BAA) presented their Study of Agricultural Biotechnology Benefits in Thailand in early 2007 ([TH7015](#)). The report reviewed the socioeconomic impact of the technology and estimates Thailand's loss if Thailand does not adopt this technology. In 2010, the findings from a thesis project on "Factors Determining GM Soybean Milk

Acceptance among Bangkok Consumers”, based on an interview of 340 consumers at supermarkets, revealed that 66 percent of the respondents would not purchase GM foods. The survey also indicated attitudes towards GMO in three aspects; health risks, consumption benefits, and environment effects. On health risks, 40 percent of respondents agreed that consumption of GM food could create an allergy reaction, while 56.2 percent agreed that consumption could lead to antibiotic resistant disease. On consumption benefits, 59.7 percent agreed that GM foods could provide better traits of foods, while 54.4 percent agreed that consumer could pay less for GM foods. Regarding the environment aspects, 68.3 percent agreed that GM crops could cause unbalanced ecosystem while 75.1 percent agreed that the flow of GM crops into other traditional crops could happen.

Section V. Plant Biotechnology Capacity Building and Outreach:

In 2010-2011, the U.S. Government (USG) conducted several capacity building and outreach activities, some of which were funded by USDA. These include:

- USDA funded government participants to the Asian Pacific Economic Cooperation (APEC) dialogue on biotechnology in Japan May 2010, followed by the 10th Meeting of APEC High-Level Policy Dialogue on Agricultural Biotechnology (HLPDAB) in Washington, D.C. in March 2011.
- Representative from ISAAA presented his update on the Global Status of Commercial Biotech/GM Crops to Thai on February 24, 2011.
- USDA will fund government participants to a GE Animal Workshop organized by the Government of Argentina in September 2011. Argentina is organizing and hosting the first international workshop on the “Food and Environmental Safety Assessment of Genetically Engineered (GE) Animals.” This workshop is sponsored by the International Centre for Genetic Engineering and Biotechnology (ICGEB) and the United Nations University-program for Biotechnology in Latin American and the Caribbean (UNU-BIOLAC). The objective of the workshop is to educate participants on the food and environmental safety assessment of GE animals, as well as to enhance cooperation and provide capacity building.
- FAS/Bangkok will coordinate with a local biotechnology organization and with Asia BioBusiness Pte. Ltd. (ABB) a two-day risk communication workshop in September 2011. This activity will build on a previous risk communication workshop in 2009, providing risk communicators the ability to present their views on TV and radio interviews, public hearings, debates and briefings to government officials.

The modern/agricultural biotechnology outreach in Thailand is challenging when trying to reach policymakers as political unwillingness is prevalent in tackling the issue. However, in order to move biotechnology forward it is necessary to rely on industry and scientific stakeholders supportive of the technology. This approach was successfully tested when stakeholders formed a unified front to exclude biotechnology from the list of a “potentially hazardous activities to a community’s well-being”. However, they need more support to keep developing an evolving risk-communication strategy.

Another activity that needs additional outreach efforts is the necessity of a closer engagement with government officials and politicians and emphasizes how countries in the region, such as Vietnam and Philippines, are at the forefront of agricultural development with the introduction of these technologies. Point out that if Thailand does not keep-up with advances it will find itself in a competitive disadvantage.

Section VI. Animal Biotechnology:

Thailand has not initiated any development on the genetic engineering of animals.

End of Report.